

Ch 9 Inequalities

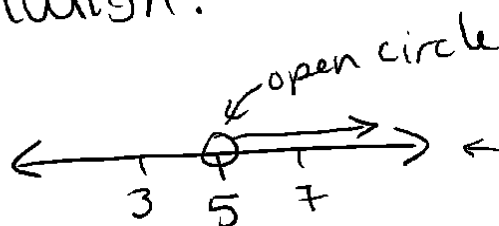
Tuesday, June 29, 2010 12:48 PM

- ★ if your inverse operation is to multiply or divide by a negative, you must flip the inequality.
- ★ You will express your answer on a number line
- ★ There are 2 checks: one for the boundary point and one for the rest of the solution.

ex

$$x > 5$$

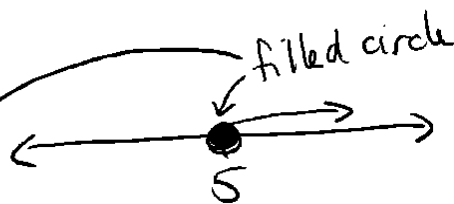
← boundary points
↑ greater than



← Anything above the 5 is the solution

$$x \geq 5$$

↑ greater than or equal to



$$x < 5$$

↑ less than



$$x \leq 5$$

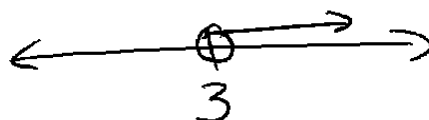
↑ less than or equal to



← 5 or anything below it is the solution

ex

$$\begin{array}{rcl} 8x + 2 & > & 26 \\ -2 & & -2 \\ \hline 8x & > & 24 \\ \hline x & > & 3 \end{array}$$



$$\frac{8x}{8} > \frac{24}{8}$$

$$x > 3$$

3

2 Checks:

Boundary Pt = 3

$$8(3) + 2 \stackrel{?}{>} 26$$

$$26 \stackrel{?}{>} 26$$

⇒ open circle

solution → pick 7 (bigger than 3)

$$8(7) + 2 \stackrel{?}{>} 26$$

$$58 > 26 \checkmark$$

solution arrow is pointing the correct direction.

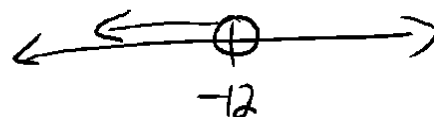
ex

$$\frac{x}{-2} > 6$$

$$-2\left(\frac{x}{-2}\right) < -2(6)$$

$$x < -12$$

multiplying by "-2" so flip the inequality



Checks:

Boundary = -12

$$\frac{-12}{-2} \stackrel{?}{>} 6$$

$$6 > 6$$

⇒ open circle

solution → "-13"

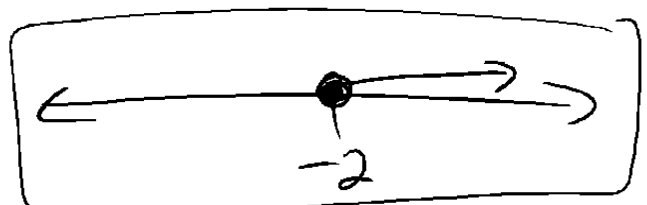
$$\frac{-13}{-2} \stackrel{?}{>} 6$$

$$6.5 > 6 \checkmark$$

arrow correct

ex

$$\begin{array}{rcl} -3x & \leq & x + 8 \\ +3x & & +3x \\ \hline 0 & \leq & 4x + 8 \\ -8 & & -8 \\ \hline \end{array}$$



$$\frac{-8}{4} \leq \frac{-8}{4}$$

$$x \geq -2$$

$$\frac{-8}{4} \leq \frac{-8}{4}$$

$$-2 \leq x \Rightarrow x \geq -2$$

Checks

Boundary = -2

$$\rightarrow -3(-2) \stackrel{?}{\leq} (-2) + 8$$

$$6 \leq 6$$

True, filled dot

Solution $\Rightarrow 2$

$$-3(2) \stackrel{?}{\leq} (2) + 8$$

$$-6 \leq 10 \checkmark$$

arrow is correct

Practice pg 347 # 5, 9, 10, 11
 pg 357 # 9, 12
 pg 365 # 6